231/1
BIOLOGY
PAPER 1
TIME: 2 HOURS

ALLIANCE GIRLS
MOCK EXAM

Instructions to Candidates

Answer ALL the questions in the spaces provided below each question.

Question	Maximum Score	Candidate's Score
1-20	80	

This paper consist of 11 printed pages.
Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing

1. (a) Define active transport. (1 mk)

(b) State three characteristics of active transport. (3 mks)

2. (a) State two functions of a microscope. (2 mks)

(b) State two factors that determine the choice of a microscope during biological investigations. (2 marks)

3. (a) Name one characteristic that is common to gills of fish and the mouth cavity of a frog that enable them to be efficient in gaseous exchange. (1 mark)

(b) Describe the changes that occur to the rib cage and the diaphragm during respiration. (3 marks)

4. (a) Name the structural units of the following;
(i) Lipids

(ii) Proteins

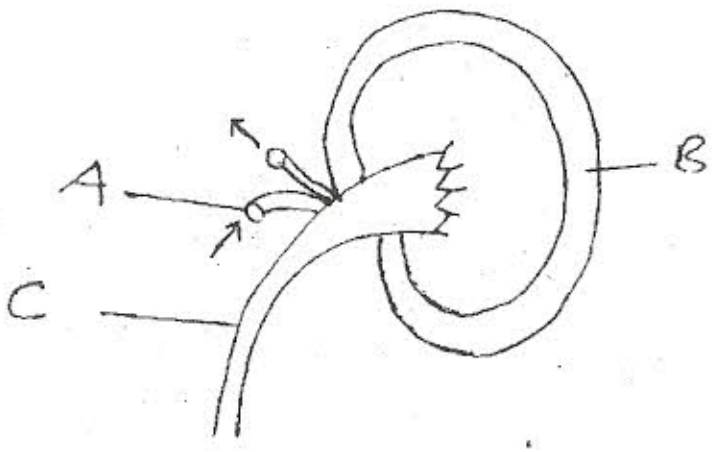
(2 marks)

(b) State the form in which carbohydrates are stored in;
(i) Plants

(ii) Animals

(2 marks)

5. Study the diagram below and answer the questions that follow:



(a) Name the parts labelled
A

C

(2 marks)

(b) Name the part of the kidney where the glomerulus is found. (1 mark)

(c) Name a plant excretory product that the plant uses in photosynthesis. (1 mark)

6. The dental formula of a certain mammal is:

$$1\left(\frac{2}{1}, C\ \frac{0}{0}, PM\ \frac{3}{2}, M\ \frac{3}{3}\right)$$

(i) Suggest the identity of the mammal. (1 mark)

(ii) Give a reason. (1 mark)

(iii) How many teeth does the animal have altogether. (1mark)

(iv) State the function of caecum in some non-ruminant animals. (1 mark)

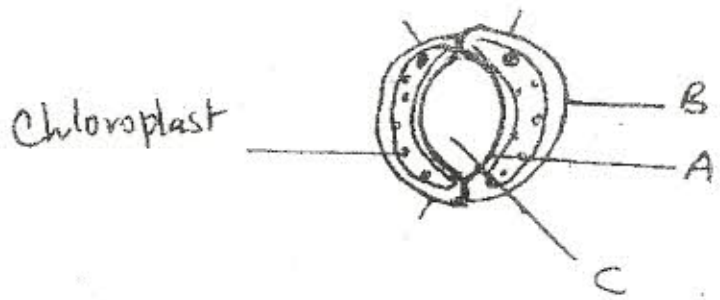
7. (i) Explain why it is important for athletes to train in high altitude areas before an important competition. (3 marks)

(ii) Name the substances which accumulates in muscles when respiration occurs with insufficient oxygen. (1 mark)

8. (i) How do kidneys keep the concentration of water in the blood constant? (3 marks)

(ii) By what process are substances passed from glomeruli to the cavity of Bowman's capsule. (1 mark)

9. Use the diagram of the stoma below to answer the questions that follow.



Identify parts labeled (2 marks)

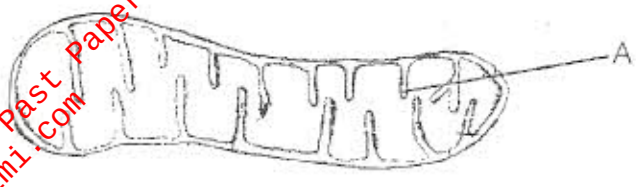
A

B

(b) State the function of part labelled C. (1 mark)

(c) Name the process that takes place in a chloroplast. (1 mark)

10. The diagram below is an organelle present in all eukaryotic cells. Study it carefully and answer the questions that follow.



(i) Identify the organelle. (1 mark)

(ii) State the function of the organelle. (1 mark)

(iii) Give the function of the structure labelled A. (1 mark)

(iv) Where is this structure more abundant in an animal? (1 mark)

11. (a) What role do the following features play in the movement of tilapia fish?

(i) Myotomes. (1 mark)

(ii) Swim bladder. (1 mark)

(b) Give two characteristics of skeletal muscles. (2 marks)

12. A small amount of substance x was applied on one side of maize coleoptiles. After 3 days, the coleoptiles curved away from the side to which the substance was applied.

(a) Suggest the identity of substance x. (1 mark)

(b) Explain how this substance may have caused the coleoptiles to curve. (2 marks)

(c) What would be the effect of cutting off the tip of the coleoptiles and exposing the remaining portion to light from one direction. (1 mark)

13. (a) State the economic use of the following plant excretory products. (4 marks)

(i) Colchicine

(ii) Morphine

(iii) Latex

(iv) Papain

14. (a) The following table shows three mammalian hormones involved in menstrual cycle.
For each hormone, state the site of production and its function in the body during menstrual cycle.
(3 marks)

Hormone	Site of Production	Function
Follicle stimulating hormone		
Oestrogen		
Luteinising hormone		

(b) Name the organism that causes syphilis. (1 mark)

15. (a) Give the difference between the following structures in wind and insect pollinated flowers.
(3 marks)

(i) Anther

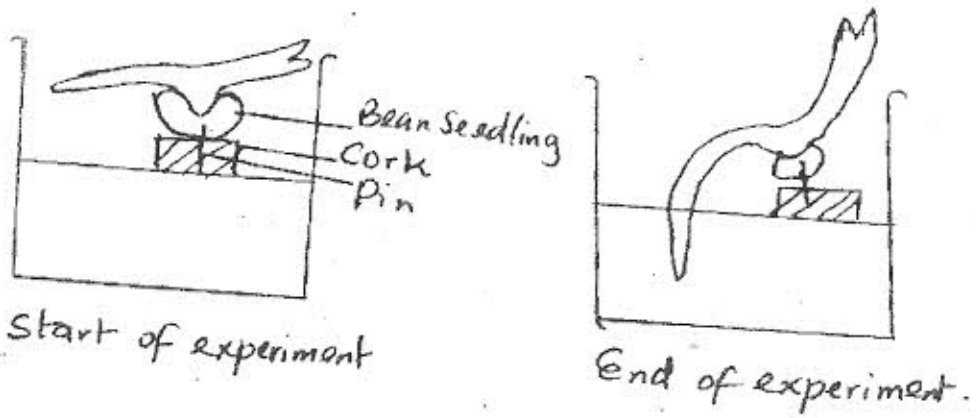
(ii) Pollen grains

(iii) Stigma

(b) What is the importance of cross pollination. (1 mark)

(c) Explain how a seed is formed after an ovule is fertilized. (4 marks)

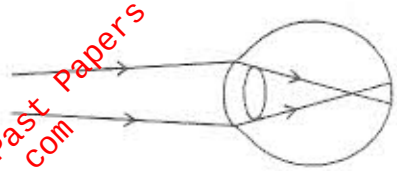
16. An experiment was carried out to investigate a growth response in a bean seedling as illustrated in the diagrams below.



(a) What type of response was being investigated? (1 mark)

(b) Explain how the response exhibited by the root comes about. (3 marks)

17. The diagram below shows a human eye that is defective.



(a) Name the eye defect illustrated in the diagram above. (1 mark)

(b) State two causes of this defect? (2 marks)

(c) How would this defect be corrected? (1 mark)

18. In an experiment, some germinating seeds were placed in a large air tight flask and left for four days.

(a) Suggest the expected changes in the composition of gases in the flask on the fifth day. (2 marks)

(b) Give reasons for your answer above. (2 marks)

19. (a) What is organic evolution? (1 mark)

(b) Give a reason why each of the following is important in the study of evolution.

(i) fossil records (1 mark)

(ii) Comparative anatomy (1 mark)

(c) Give one difference between Darwinian & Lamarckian theories. (1 mark)

20. (a) State three characteristics that ensure cross-pollination takes place in flowering plants. (3 marks)

(b) Give a reason why it is necessary for frogs to lay many eggs. (1 mark)